GOAL SETTING CHARRETTE

29-30 August 2000

The following represents a summation of the "Green Building Charrette", held at The Rickman Center in Jefferson City, Missouri on August 29 and 30, 2000. A group of approximately seventy representatives gathered together to envision the possibilities and set the goals for the MDNR "Green Building". Individuals in this group represented the Missouri state departments of Design and Construction, Natural Resources and the Office of Administration; the architectural and engineering design team led by BNIM Architects; and other interested individuals from public and private agencies and corporations.

The results of this charrette are summarized in the Eight Guiding Principles indicated on the following page. These principles were the result of specific project goals suggested by the design team and were agreed upon by a majority of the group. The initial list of categories that began the discussions is as follows:

- Site Considerations
- Building Usage
- Envelope Design and Construction Materials
- Interior Environment
- Mechanical Electrical Plumbing Considerations
- Education / Outreach

The backup ideas and comments that were brought forth during the charrette are provided after the Guiding Principles.

EIGHT GUIDING PRINCIPLES FOR THE GREEN BUILDING:

It was decided that the following guiding principles be used in the design of the Green Building project.

The Green Building shall be:

- a beautiful building that sets new standards for workplace and environmental quality along with systems efficiency.
- a building that is shaped by the purposes and goals of the interior, the Department of Natural Resources and the context and potentials of the site.
- a building that strives for environmental equality for all occupants.
- located on a site in which the site selection process will prioritize available urban sites as well as the reuse or incorporation of an existing structure.
- located on a site such that site development will integrate environmental design standards, provide inviting and accessible outdoor spaces, minimize vehicular emphasis and demonstrate responsible landscape practices to reduce onsite and offsite impacts.
- a building that incorporates simple, flexible systems that maximize use and productivity while minimizing waste.
- a building where the selection and use of materials and systems are based on life-cycle analysis considering economic, operational, social and environmental benefits.
- an endeavor that facilitates green development by educating:
  - the political/governmental community to build support,
  - the building community to develop capability
  - the general public to promote awareness and stewardship.

The following ideas, questions and concerns came out of the smaller breakout groups that met to discuss the major topics suggested by the design team: Site Considerations, Building Usage, Envelope Design and Construction Materials, Interior Environment, Mechanical / Electrical / Plumbing Considerations, Education and Outreach. These ideas were presented to the larger group and were included into the Guiding Principles to varying degrees.

SITE CONSIDERATIONS

- A contextually responsive building located in an urban setting; preferably a renovated/reuse project instead of new construction.
- The site should have the required infrastructure adjacent to it and have connectivity to inter-modal and multi-modal transportation.
- Site characteristics will support the building, parking and green space. Consideration should be given to site of less than seven acres.
- Development of the site should integrate parking building, landscaping and the natural environment. Committee suggests site design that supports energy and environmental stewardship.
- Site features shall include places for people in the outside environment, habitat for wildlife, exemplify universal design and utilize native species of plant materials.

BUILDING USAGE

- Building flexibility
  - Expand
  - Change
- Need input from users
- Truman Building is pretentious
- Site should be large enough for more buildings to be added later
- Residences?
- Law requires that Bureau of the Blind >90 people in the building to operate food service
- Too few employees will support food service
- Security of the building
  - Staff
  - Records
  - Physical Plant
- Include public spaces and private offices
- Greeters instead of guards
- How do we protect privacy and provide security
- Incorporate space that can be developed as dwellings (mixed use)
- Develop downtown building: best option in Jefferson City
- Building should be able to be adapted to future needs, both structurally and functionally
- Flexible electric raceways and more efficient tools
- Minimize reconfiguration costs and waste
- Find out what employees want in the workplace
- Multi-use spaces, including:
  - Public meeting rooms
  - Lactating rooms
  - On-site daycare
- Access to daylight to anyone that wants it
- People who work in and visit the building should feel it is user-friendly
- Individual climate control
- Allow natural light to penetrate deeper into the interior of the building – optional method is to keep 'closed offices' away from the windows
- User-friendly mechanical systems; accessibility to how systems function; wastewater management, air-handling, etc.
- Keep system open to show how they work
- Label systems to aid in education and demonstrate functions
- Building should reflect, in some way, the tourism motto: "where the rivers run"

- Make waste reduction user-friendly and visible to staff and public:
  - Reduction
  - Reuse
  - Recycle
- Economic feasibility
- Cost benefit analysis of utilities to include societal costs (not full cost analysis)
- As a model, this building should pay (and exhibit) the full societal costs
- Proposed societal costs would add $0.045/kwh and $1.50/MBTU of natural gas
- Cost benefit analysis should include future utility-cost increases (projected)
  - Have funds set aside to measure / monitor effectiveness of "green building" systems, processes and demonstrate this to the tax-paying public

ENVELOPE DESIGN AND CONSTRUCTION MATERIALS

- Heavily articulated façade
- Awnings, light shelves, trellis
- Demonstrate glazing / productive surfaces
- Need to set standard for acoustical control
- Flexible design that includes longevity: 100 years life
- Operable windows?
- Select materials that can be reused after de-construction
- Explore alternative envelope design, double envelope
- R-value of walls =>R30
- R-value of roof =>R50
- R-value of windows =>R-6
- Use of native materials as a showcase
- Use of "spiritual" materials / crafts
- Integration of art and local artisans in building materials

DAYLIGHT:

- Goals: all offices have light (ambient)
- Maintenance of windows
- Balance of thermal comfort/glazing
- Light shelves
- Shading as light control (natural)
- Manipulate structure to maximize daylight
- Daylight as beauty/theme

MATERIALS:

- Maximize recycled content (10%)
- Missouri manufacturers/materials (75% / 500 mile radius)
- Maximize recovered materials (10%)
- Fly ash from local sources (quality)?
- All certified wood or recovered; develop standards for recovered wood
- Seek grants for materials research / code education (officials)
- Balance indoor air quality with material choice
- Use WasteSpec as a baseline
- Recycle >50% of C/D waste
- Develop educational opportunities for developers
- Develop methodology for costing (contractors)
- Downstream market development
- Packaging minimization
- Incorporate materials selection in training video
- Develop new materials from Missouri waste stream with a push toward materials that are near acceptance
  - Material selection based on life cycle costs including replacement and maintenance: Low friable and 'sticky' materials; Ozone friendly materials; Maximize alternatives to PVC

INTERIOR ENVIRONMENT

Including Design Issues, Indoor Air Quality, Human Health and Productivity

BUILDING TO BE SHAPED BY THE PURPOSES AND GOALS OF THE INTERIOR AND THE REALITIES OF THE SITE

- Program oriented
- Team configuration
- Public consideration
- Building communicates its purpose(s)
- Create communal / social spaces

ENVIRONMENTAL EQUALITY

- Low stress
- Individual control
- Desirable space
- Exceptional air quality
- Quality lighting
  - o Daylight
  - o Electric light
- Acoustics

SETTING NEW CUTTING EDGE OFFICE/INTERIOR STANDARDS

- Flexibility through time
- Quality of the environment
- Research and tested
- Functional and efficient
- "Cradle-to-cradle" resource efficiency

LONG TERM BUILDING USE

- Maintenance systems, materials
- Building management
- Recognizing initial goals and efficiencies
- Empowering the user
- Defining the limits: size, occupancy, energy

MECHANICAL / ELECTRICAL / PLUMBING

LIGHTING – GOAL: MAXIMUM OF <1.0W/SF

- Zoned
- Light to satisfy users
- Lighting quality and aesthetics
- Daylighting integration
- Equipment efficiency

ALTERNATIVE SOURCES OF ENERGY – GOAL TO USE ALTERNATE ENERGY SOURCES FOR DEMONSTRATION/EDUCATION PURPOSES (TARGET = 20%)

- Solar Hot Water
- PV
- Geothermal
- Wind
- Fuel Cell
- Heat Recovery
- Daylighting/Passive elements

HVAC - GOAL: DESIGN THE MOST EFFICIENT OFFICE BUILDING IN MISSOURI

Set a new standard significantly above current best in Missouri by incorporating:

- T.E.S.
- Raised floor
- Heat recovery
- Passive systems / innovative systems
- Well above ASHRAE
- Geothermal (well, river, etc.)
- Right-sizing
- Definition of comfort; Exceed OA & IAQ Requirements

WATER - GOAL: MINIMIZE WATER USAGE
- Dual system potable / non-potable
- Storm water capture
- Fire system tank
- Water efficient fixtures
- Waste water recycle
- Solar water heat

OPERATIONS & MAINTENANCE – GOAL: SIMPLE TO MAINTAIN WHILE PERFORMANCE DOES NOT DEGRADE OVER TIME
- Indicators for periodic maintenance
- Database for systems
- Energy management systems
- Good system design / layout

ELECTRICAL SYSTEMS AND TELECOM – GOAL: DNR SET GUIDELINES FOR LOWEST POSSIBLE EQUIPMENT POWER USAGE (W/SF); TARGET = $.75/SF/YEAR
- Cable management
- Raised floor
- IEEE standards
- Minimize copper
- 'Low-E' office equipment
- Right-size electrical equipment
- No need to undersize wires
- Office standards
- Minimize EMF's
- Provide service to all users
- Better transformers

OTHER M/E/P:
- "Adaptive", Flexible, Plan for expansion
- Maximize LEED's consistent with repetition
- Teaching Value/Demonstration
- Replicable in Gov. & private sector
- Tap into district cooling/heating system
- Commissioning
- Alternates to Atrium

EDUCATION/OUTREACH

WHO?
- Legislature
- Building trades and building community
- Architects
- Students: elementary, high school, college, adult education
- Public

- DNR employees
- Local investors
- OA and other state agencies
- Realtors / Chamber / Businesses
- Environmentalists

WHAT?

- Green specifications for suppliers
- How do you evaluate what's good - bottom line? (social/environmental/$)
- Increasing availability of green supplies
- Constraints are great things to fuel imagination
- Teach people what they can do individually – "how can I apply this?"
- Message: Progress on Goals: For example, energy and water use
- Environment – Big picture of how the building relates to its greater environment
- DNR and its mission toward services to the site
- Overcome hesitation to do green building
- Effect of a green building – $/energy/use/emission
- Documentation of the performance of the building
- Why it's profitable to all constituents (taxpayers, builders, developers)
- On the process of evaluation – what green components work and why and where
- Bottom line: $/social/environmental (model)
- How to repeat this process – recycle, construct, air quality

HOW?

- Keep performance records – baseline
- Interpretation of building – guide
- Create "public area" – atrium / theater / meeting room
- Create "work area" – offices
- Printed material available (all DNR)
- Interactive displays – real time, hands-on
- Flexibility
- Education starts today – Involves whole process and keeps people in the discussion
- Articles
- T.V. advertisements
- Web site / Video
- Radio spots – 30-60 sec. to pique interests
- Must document success / progress
- A.P. on board
- Panorama story
- National press
- Environmental media
- J-School (MU)
- Quarterly updates in Missouri resources articles